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ABSTRACT

It has traditionally been assumed that children's ability to label individuals as older precedes their tendency to associate particular behavioral competencies with individuals who vary in age. To systematically test this assumption, 64 preschool children were presented with 9 pairs of stimulus faces reflecting different ages. The children were asked to make relative age-level and trait judgments in response to a story narrated by the experimenter involving a child's attempt to retrieve a kite caught in a tree. Children were asked to identify which individual in each stimulus pair they felt was (1) smart enough to figure out a way to get the kite down, (2) too weak to climb the tree and retrieve the kite, (3) too mean to help get the kite, and (4) the "boss" who had said not to fly the kite near the tree. Results indicated that the ability to label individuals as older improved with age but was not a necessary prerequisite for associating particular behavioral characteristics with individuals of varying ages. Findings were discussed in terms of the influence of linguistic abilities on labelling ability, children's abilities to use certain physiognomic cues as sources of age-level information, and the potential for certain age-related facial characteristics to elicit particular impressions of behavioral capacities. (Author/RH)

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The Development of Age-Discrimination Ability and Stereotyping of the Elderly

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It has traditionally been assumed that children's ability to label individuals as older precedes their tendency to associate particular behavioral competencies with individuals who vary in age (Piaget, 1927; Kogan, Stephens, and Shelton, 1961). To systematically test this hypothesis, sixty-four prescnool boys and girls were presented with a series of pairs of stimulus faces which varied in age and asked to make relative age-level and trait judgments. Results indicated that the ability to label individuals as older improved with age, but was not a necessary prerequisite for associating particular behavioral characteristics with various aged individuals. Findings were discussed in terms of (a) the influence of linguistic abilities on labelling ability, (b) children's ability to use certain physiognomic cues as sources of age-level information, and (c) the potential for certain age-related facial characteristics to elicit particular impressions of behavioral capacities.

Title. The Development of Age-Discrimination Ability and Stereotyping of the Elderly

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Background. The focus of the present study grew out of a paradoxical relationship between two areas of research. The first line of research deals with the extent to which the growth of children's ability to label individuals as older or younger follows a cognitive-developmental sequence. Consonant with the observations of Piaget (1927), many researchers (Kogan, Stephens, and Shelton, 1961; Britton and Britton, 1968; Kuczaj and Lederberg, 1976; Looft, 1971; Sheehan, 1978; Galper, Jantz, Seefeldt, and Serock, 1981) have found that children's ability to label the relative age of individuals improves with increasing age. To explain this age-related improvement, it has generally been assumed that children first associate age with size cues (height) and base their judgments of age primarily on this cue. It is not until children enter into the stages of operational thinking that they come to understand certain conceptual aspects of age and are able to disentangle the age-size correlation. The second line of research concerns children's impressions of individuals of various age groups, particularly the elderly. Research in the area of social gerontology suggests that children as young as 4 years of age hold negative, stereotypic impressions of older adults (Hickey and Kalish, 1968; Seefeldt, Jantz, Galper, and Serock, 1977; Weinberger, 1980).

In view of these two lines of research, the following paradox is evident: how is it that young children hold stereotypic views of older adults when they do not even have an adequate concept of the class in question? Indeed, past researchers have generally assumed that it is unlikely that children will demonstrate a systematic bias in their impressions until they have acquired a conceptual understanding of age (Kogan, Stephens, and Shelton, 1961). Nevertheless, attitudinal research seems to imply that this is not necessarily the case.

Two main limitations in the methodologies of past research may account for the observed paradox. First, children's ability to label individuals on the basis of age and their tendency to associate particular behavioral attributes with certain age groups have not been adequately assessed within a single paradigm. Second, with the exception of studies which have varied size cues, the influence of other sources of age-level information (physiognomic cues) has not been systematically examined. When children are not distracted or confused by size cues, their sensitivity to age differences and their ability to label individuals appropriately may become more apparent.

The purpose of the present study was to explore potential sources of stimulus information (other than size) children are able to use for labelling individuals on the basis of age. In addition, children's tendency to associate particular behavioral attributes with physical features that are correlated with age was examined.

Subjects. Sixty-four children attending various Day Care Centers in the Waltham, Massachusetts area served as participants. Participants were divided into two age groups with an approximately equal number of boys and girls in each group. The younger group consisted of 32 children ranging in age from 31 months to 43 months, with a mean age of 38 months. The older group consisted of 32 children ranging in age from 48 months to 71 months, with a mean age of 58 months.

Procedure. Children were asked to view a series of 9 pairs of stimulus figures and to indicate which individual in each pair they felt was most likely to perform each of four behaviors described in a brief story read by the experimenter. In addition, children were asked to identify the "older" stimulus person in each stimulus pair.

Stimulus figures were designed such that physiognomic characteristics hypothesized to be potent sources of age-level information were systematically

manipulated. In order to represent a broad age range in the stimuli, it was necessary to create two types of stimulus figures since sources of age-level information may be different at the older and younger ends of the age continuum.

Using a police Identi-kit, two sets of three adult male faces were generated in which facial wrinkles and hair color were varied. Within each set, all other facial characteristics were held constant and neutral expressions were maintained. Stimulus faces representing the young adult category (35 years) possessed minimal facial wrinkling and black hair. Stimulus faces depicting middle-aged adults (55 years) had a moderate degree of facial wrinkles and had grey hair. Stimulus faces representing older adults (75 years) had the greatest amount of wrinkles and had grey hair. Figure 1 illustrates the stimulus figures used to depict the adult age-levels.

An additional set of stimulus figures consisting of three schematic profiles upon which a cardiodal strain transformation had been performed was created to represent the younger end of the age continuum. A cardiodal strain transformation is a mathematical equation which is assumed to simulate changes in the shape of the head as it undergoes growth (Shaw and Pittenger, 1977). Stimulus profiles represented 4 years, 16 years, and 30 years of age, respectively, as estimated by adult judges (McArthur and Apatow, 1981). Figure 2 illustrates the stimulus figures used to depict the younger age-levels.

For each of the three stimulus sets, three unique combinations of stimulus figures were formed such that each figure was paired with another figure at least once. This resulted in the 9 pairs of stimulus figures to which children were exposed. Placement of stimulus figures (left-right, older-younger) was counterbalanced across stimulus pairs. Two orders of presentation were generated such that counterbalanced stimulus pairs were alternated with no two pairs in the same stimulus set appearing next to each other. Half of the subjects received one order; the other half received the altenative order.

The story narrated by the experimenter involved a child's attempt to retrieve a kite that had been caught in a tree. Children were asked to identify which individual in each stimulus pair they felt was (1) smart enough to figure out a way to get the kite down,(2) too weak to climb the tree and retrieve the kite, (3) too mean to help get the kite, and (4) the "boss" who had said not to fly the kite near the tree. All behaviors were described in a task-oriented fashion to insure that children understood the intended meanings of the target behaviors. Four versions of the story were created in which the order of presentation of behaviors was counterbalanced across versions. Subjects were randomly assigned to one of the four presentation conditions.

Results. Data for faces and profiles were analyzed separately.

Faces. Children, on the whole, selected the older stimulus face in each pair significantly more often than chance as too weak to climb the tree to retrieve the kite and too mean to help get the kite. In addition, older faces were chosen significantly less often than chance as smart enough to figure out a way to retrieve the kite and as the "boss" who adviced not to fly the kite near the tree. Finally, older stimulus faces were identified as "older" significantly better than chance.

Breakdown by age group indicated that older children were more accurate at identifying older stimulus faces as "older" than younger children. Older children selected older stimulus faces significantly more often than chance as mean and significantly less often than chance as smart and the "boss". There was a marginally significant tendency for older children to select older faces as weak better than chance. Younger children selected older stimulus faces as weak and mean significantly more often than chance. Table 1 represents the summary statisitics for these findings.

On the basis of these data, it can be seen that even very young children readily associate particular behavioral attributes with physiognomic characteristics, such as wrinkles and grey hair, that are correlated with age. Consonant with past research, the ability to label relative age appropriately appears to improve as a function of the age of the child.

Equally interesting (and perhaps a more telling analysis of the data) is an examination of choices broken down by the age of the child and the ability to label the relative age-level of stimulus faces appropriately. Table 2 represents the summary statistics for this analysis. Data indicate that even though a number of children (particulary younger children) were unable to label the relative age-level of stimulus faces appropriately, they nevertheless offered systematic judgments of perceived behavioral attributes of aging faces. Although not all of the reported means reached significance, they are all in the expected direction. These data suggest that children's impressions of older adults begin to develop before children are able to apply appropriate relative age-level labels. Thus, stereotyping may be said to precede age-labelling ability.

Profiles. In contrast to the data obtained with stimulus faces, stimulus profiles did not elicit any systematic perceptions of behavioral attributes. In addition, children were unable to identify the relative age-level of older stimulus profiles better than chance. Table 3 represents the summary statistics for these findings.[1]

Summary and Implications. The present study demonstrated that certain physiognomic characteristics such as wrinkles and hair color serve as potent sources of age-level information which children are able to use for labelling individuals on the oasis of relative age. Moreover, children readily associate particular behavioral attributes with certain physical features that are correlated with age; however, children's tendency to make stereotypic judgments of various aged individuals appears to develop before they are able to articulate the nature of the class in question. The ability to apply appropriate age labels seems to improve with increasing age. Consonant with the views espoused by Kuczaj and Lederberg (1976), the present authors feel that this improvement reflects changes in linguistic capacity rather than conceptual knowledge of perceived age-related differences in behavioral competencies. The development of this conceptual knowledge may reflect a number of factors. One factor which has received little attention is the extent to which certain physical characteristics suggest particular behavioral attributes. That is, characteristics such as wrinkles may suggest weakness and meanness by virtue of some intrinsic quality of their appearance. Young childrenmay be sensitive to the qualities reflected by particular physical features at an early age. Since certain features are highly correlated with age, associated attributes may come to be representative of certain perceived age-differences in behavioral competencies. Why and how certain physical characteristics elicit particular behavioral impressions are empirical questions which warrant further examination.

1. The failure of stimulus profiles to elicit behavioral impressions or judgments of relative age-level may reflect the abstract nature of the stimulus information. The present authors are currently involved in a follow-up study which employs more realistic stimulus profiles. That is, profiles which possess more detailed internal physical features.

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Table 1

Mean Number of Times Older Stimulus Face Selected: All Children, Older Children, Younger Children

All Children (N = 64)		Older Children (N = 32)		Younger Children (N = 32)	
Smart	$\bar{X}$ = 2.219***	Smart	$\bar{X}$ = 1.719***	Smart	$\bar{X}$ = 2.718*
Weak	$\bar{X}$ = 3.609***	Weak	$\bar{X}$ = 3.594*	Weak	$\bar{X}$ = 3.625***
Boss	$\bar{X}$ = 2.453**	Boss	$\bar{X}$ = 2.094***	Boss	$\bar{X}$ = 2.813
Mean	$\bar{X}$ = 4.031***	Mean	$\bar{X}$ = 4.5***	Mean	$\bar{X}$ = 3.563**
Older	$\bar{X}$ = 3.672**	Older	$\bar{X}$ = 4.156**	Older	$\bar{X}$ = 3.188

Note. Chance level was defined as a mean of 3 out of 6 choices.

*p .10
**p .02
***p .001

Table 2

Mean Number of Times Older Stimulus Face Selected: Nonlabellers and Labellers

Older Children		Younger Children	
Nonlabellers (N = 15)		Nonlabellers (N = 28)	
Smart	$\bar{X}$ = 2.4*	Smart	$\bar{X}$ = 2.714
Weak	$\bar{X}$ = 2.933	Weak	$\bar{X}$ = 3.679**
Boss	$\bar{X}$ = 2.067***	Boss	$\bar{X}$ = 2.786
Mean	$\bar{X}$ = 4.067**	Mean	$\bar{X}$ = 3.393*
Labellers (N = 17)			
Smart	$\bar{X}$ = 1.113****		
Weak	$\bar{X}$ = 4.176***		
Boss	$\bar{X}$ = 2.113**		
Mean	$\bar{X}$ = 4.882***		

Note. Chance level was defined as a mean of 3 out of 6 choices.

*p .10

**p .05

***p .01

****p .001

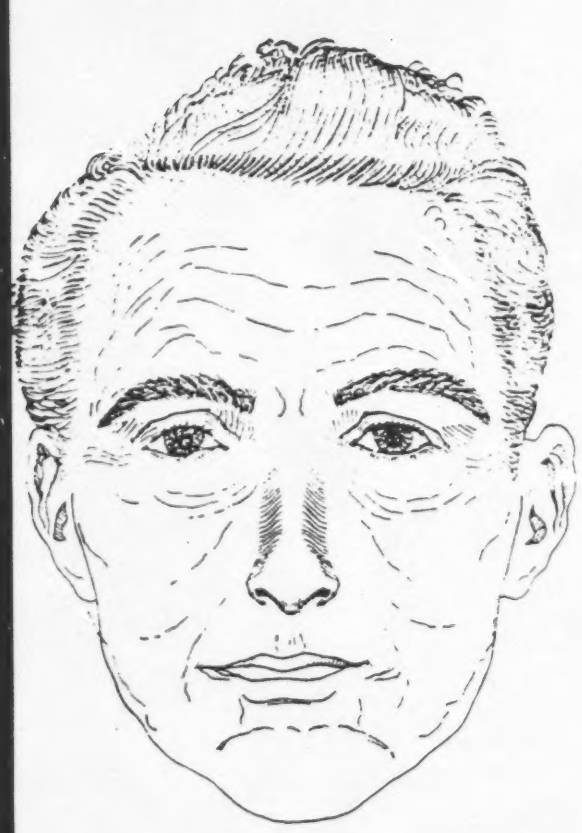
Table 3

Mean Number of Times Older Stimulus Profile Selected: All Children

Smart	$\bar{X}$	=	1.625	NS
Weak	$\bar{X}$	=	1.438	NS
Boss	$\bar{X}$	=	1.391	NS
Mean	$\bar{X}$	=	1.609	NS
Older	$\bar{X}$	=	1.609	NS

Note. Chance level was defined as a mean of 1.5 out of 3 choices.

Figure 1: Stimulus set / of adult male faces



75 year old male

55 year old male

35 year old male

Figure 1: Stimulus set 2 of adult male faces

75 year old male

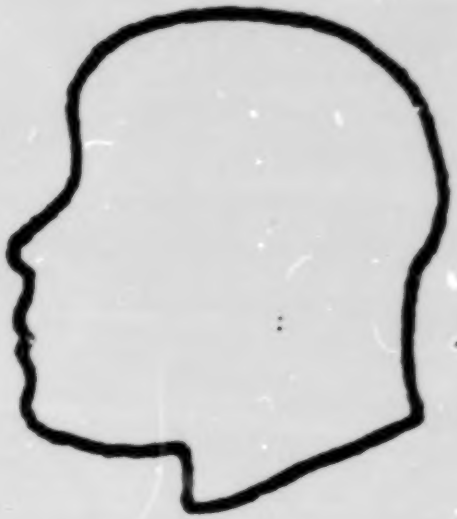
55 year old male

35 year old male

Figure 2: Stimulus set of profiles

4 year old

16 year old



30 year old